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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/325,110	06/03/1999	CARL S. ANSELMO	PD-990033	2415

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THE DIRECTV GROUP INC
PATENT DOCKET ADMINISTRATION RE/R11/A109
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CHOW, CHARLES CHIANG	
ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/325,110	Applicant(s) ANSELMO, CARL S.	
	Examiner Charles Chow	Art Unit 2685	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 June 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8,10-13 and 15-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,10-12 and 15-31* is/are rejected.

7)☒ Claim(s) *13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

Detailed Action
(for Amendment Received on 2/7/2005)

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:
A person shall be entitled to a patent unless –

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claim 28 is rejected under 35 U.S.C. 102(e) as being anticipated by Hammill et al. (US 6,173,178 B1).

Regarding **claim 28**, a method of configuring a satellite (col. 1,lines 14-17) comprising deploying a reconfigurable satellite (the reconfiguring of a satellite, col. 4, lines 16-25,, for the inherently disclosing of the deploying a reconfigurable satellite), storing frequency tuning information in a routing table (routing table 1-2 contain different frequencies for their associated different beam sizes, for the reconfiguring of the satellite beam size, beam bandwidth, col. 6, lines 12-26); transmitting reconfiguration instructions to said satellite (the ground station transmits the beam reconfiguring information to satellite, col. 4, lines 12-15); reconfiguring the frequency configuration of the payload of the reconfigurable satellite in response to the tuning information in the routing table (the reconfiguring of the satellite beam bandwidth of the satellite and the reconfiguring of the frequencies in different bandwidth, col. 4, lines 13-25; col. 6, lines 1-12; the low, high bandwidth in col. 2, lines 24-27, associated with the required bandwidth in col. 6, lines 1-12).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3-5, 10-12, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hammill et al. (US 6,173,178 B1) in view of Wolcott et al. (US 6,317,583 B1).

Regarding **claim 1**, Hammill et al. (Hammill) teaches a system for providing high frequency data communication (Fig. 1, col. 3, line 53 to col. 4, line 25, for the high frequency satellite data communication system), the system comprising a satellite having uplink and downlink antennas capable of receiving and transmitting a plurality of signals (the 6 satellite antennas for transmitting and receiving channels, col. 3, lines 53 to col. 4, line 11 ; the uplink, downlink antenna for communication with ground station, col. 4, lines 12-15 ; the antenna for uplink, downlink, for region of interest ROI, col. 2, lines 61-66), the satellite being a reconfigurable satellite (the satellite re-configuration for utilzing various different frequencies, the different beam bandwidth, beam sizes, via information transmitted from ground station, col. 4, lines 13-25), a routing table storing tuning information therein, a controller located on said satellite coupled to said communcaiton circuit for controlling eh frequency reconfiguration of the communication control circuit in response to said tuning information (the routing table 1-2 contains different frequencies for their associated different beam sizes, for re-configuration of the beam size, beam bandwidth, col. 6, lines 8-26; Hammill obviously teach a controller for controlling the re-configuration of the satellite

frequency in response to the tuning information in routing table 1-2), Hammill fails to teach the plurality of communication satellites, the programmable synthesizer. However, Wolcott et al.(Wolcott) teaches these features, the constellation of satellites for mobile terminals (col. 1, lines 28-54, Fig. 1), the CDMA chip code data communication (col. 2, lines 1-17; col. 13, lines 52-66), having programmable synthesizers for mapping, translating, retuning, the received uplink frequencies to the downlink frequencies, controlled by ground station (Fig. 5, col. 5, lines 1-29; col. 12, lines 53-62) associated with the beam forming (Fig. 5-6, BFN 214, col. 11, line 45-55). Wolcott teaches the reliable beam handover for the mobile terminal ground tracking (col. 6, line 48 to col. 7, line3). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hammill with Wolcott's satellites in constellation, having tunable synthesizer for beam handover, such the satellite beam reconfiguration could be reliable.

Regarding **claims 3, 10, 12**, Wolcott teaches said communication control circuit comprises an upconverter and a down converter [the up converter (Fig. 6, mixers 186-188 in 170) and down converter (mixers 166-168, Fig. 6)].

Rgarding **claims 4, 11**, Wolcott teaches said communications control circuit comprises a transpönder (the circuitry in Fig. 6, Fig. 11, are functioning for a repeater, transponder).

Regarding **claim 5,** Wolcott teaches the up converter (Fig. 6, mixers 186-188 in 170) and down converter (mixers 166-168, Fig. 6), the transponder (Fig. 11).

Regarding **claim 15**, Hammill teaches a payload for satellite for re-configuring the communication control circuit, an on-board controller, computer, and a route table having tuning information stored therein, the on board controller, computer controlling a re-

configuration of the communication control cirtcuit in response to said tuning information (the uplink, downlink antenna for communication with ground station, col. 4, lines 12-15 ; the antenna for uplink, downlink, for region of interest, col. 2, lines 61-66 ; the satellite re-configuration for utilzing various different frequencies, the different beam bandwidth, beam sizes, via information transmitted from ground station, col. 4, lines 13-25; the routing table 1-2 contains different frequencies for their associated different beam sizes, for re-configuration of the beam size, beam bandwidth, col. 6, lines 8-26; Hammill obviously teach a on-board controller, computer, for controlling the re-configuration of the satellite frequency in response to the tuning information in routing table 1-2). Hammill obviously teach the a communication control circuit for controlling communications of said satellite uplink, downlink communication to the ROI and ground station. Hammill fails to teach programmable synthesizer, a receive array, a receive beam forming network, a transmit array, a transmit beam forming network. However, Wolcott teaches these features (the synthesizers in Fig. 5, col. 5, lines 1-29; Fig. 6, the receive arrays 160-162, receiver beam forming network 170, the transmit beam forming network BNF 214, the transmit array 1-85). Wolcott teaches the reliable beam handover for the mobile terminal ground tracking (col. 6, line 48 to col. 7, line3). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hammill with Wolcott's satellites in constellation, having tunable synthesizer for beam handover, such the satellite beam reconfiguration could be reliable.

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hammill in view of Wolcott, as applied to claim 1 above, and further in view of Wiswell et al. (US 6,205,319 B1).

   Regarding **claim 2**, Hammill, Wolcott, fails to teach the claimed features. However, Wiswell et al. (Wiswell) teaches, the comprising a beam forming network coupled to uplink and downlink antenna (front figure, the receive/transmit beam phased array 102-108, 120-126; up/down converter 110) for the selectively adjusting of the amplitude and phase antenna beam for receiving/transmitting information (abstract, col. 1, lines 5-9; col. 2, lines 27-30), using ewer multi-beam antennas (col. 1, line 65 to col. 2, line 2; col. 2, lines 8-15), such that the satellite can reduce the payload complexity, and the power requirement using fewer beam antennas. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hammill, Wolcott, with Wiswell's fewer beam phased array antennas for receiving and transmitting, such that the satellite payload would be efficient, with less complexity and save power requirement.

2. Claims 6-7, 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hammill in view of Wolcott, as applied to claims 1, 15 above, and further in view of Brown (US 6,157,621).

   Regarding **claim 6**, Brown said communication control circuit comprising a TDMA switch (the time division multiple access switch (in col. 61, lines 24-31, for the communication control circuit). Brown considers the utilization of the on-board computer, the adaptive

routing processor for selecting the best route pathway according to routing table (col. 17, line 8-42; col. 43, line 46 to col. 44, line 9). Brown provides the solution for selecting of the best routing path utilizing the route table information, above, such that the route could be the best path. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hammill, Wolcott with Brown's TDMA switch, such that the best route path could be selected.

Regarding **claim 16**, Brown teaches said communication control circuit comprising a TDMA switch (the time division multiple access switch (in col. 61, lines 24-31, for the communication control circuit).

Regarding **claims 7, 17,** Brown teaches said communication control circuit comprises a packet switch (the packet switch 1306 (Fig. 112A; col. 60, line 65 to col. 61, line 11).

4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hammill in view of Wolcottt, as applied to claim 1 above, and further in view of Galvin (US 6,182,927 B1).

Regarding **claim 8**, Hammill, Wolcott, fails to teach the satellites for LEO, MEO, GSO. However, Galvin teaches the satellites for LEO, MEO, GSO (col. 6, lines 34-54, the low earth orbit satellites 50, GEO 52, the MEOs in Fig 6) for improving the satellite navigation accuracy (col. 2, line 47). Galvin teaches the efficient method to add the augmentation satellites in LEO, or MEO or GEO, the navigation accuracy could be improved (col. 6, lines 34-37). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hammill, Wolcott, with Galvin's adding different augmentation satellites, such that the system could be provide the navigation accuracy.

5. Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hammill in view of Pizzicaroli et al. (US5,813,634).

Regarding **claim 18**, Hammill teaches a method of configuring a satellite system (col. 1,lines 14-17) comprising the steps of deploying a reconfigurable satellite (the reconfiguring of a satellite, col. 4, lines 16-25,, for the inherently disclosing of the deploying a reconfigurable satellite), transmitting re-configuration instruction to said satellite (col. 4, lines 12-15), re-configuring of the frequency configuration of the payload of the reconfiguration satellite in response to the tuning information in a route table (the reconfiguring of the satellite beam bandwidth of the satellite and the reconfiguring of the frequencies in different bandwidth, col. 4, lines 13-25; col. 6, lines 1-12; the low, high bandwidth in col. 2, lines 24-27). Hammill fails to teach the re-spositioning a satellite from a network position, and moving the reconfigurable satellite into the network position. However, Pizzicaroli teaches these features (the replacing of the failing satellite with spare satellite, abstract, Fig. 1; step of deploying a reconfigurable satellite, Fig. 5-6, steps 720, whether to place spare satellite in service; the commanding spare satellite to maneuver into position to provide service in col. 5, lines 41-55; step 725, give spare satellite positional target and authorization; command two satellites to spare orbit in step 750; command satellite to initiate maneuver in step 760). Pizzicaroli teaches the reliable satellite communication link by providing a spare satellite to replace the failing satellite. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hammill with Pizzicaroli's repositioning, maneuvering, the

spare satellite into operating orbit, such that the satellite communication link of the failing satellite could be replaced by the spared satellite.

Regarding **claim 19**, Hammill teaches the step of reconfiguring the payload by changing frequencies of the different beam size bandwidth (showed in claim 1 above). Wolcott teaches the up converter (Fig. 6, mixers 186-188 in 170) and down converter (mixers 166-168, Fig. 6).

Regarding **claim 20**, Hammill teaches the step of reconfiguring the payload by changing frequencies of the different beam size bandwidth (showed in claim 1 above). Wolcott teaches the up converter (Fig. 6, mixers 186-188 in 170) and down converter (mixers 166-168, Fig. 6), the changing a frequency in a programmable frequency synthesizers (Fig. 6, the synthesizer are programmable, for mapping, translating, retuning, the received uplink frequencies to the downlink frequencies, controlled by ground station (Fig. 5, col. 5, lines 1-29; col. 12, lines 53-62).

6. Claims 21-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hammill in view of Pizzicaroli, as applied to claim 18 above, and further in view of Brown-'621.

Regarding **claim 21**, Hammill, Pizzicaroli, fails to teach the steering antenna and phase shift. Brown teaches the steering antenna and phase shift (col. 14, line 51 to col. 15, line 5) and the beam forming 554/568, beam compensation (Fig. 42, col. 19, lines 15-40). Brown considers the utilization of the on-board computer, the adaptive routing processor for selecting the best route pathway according to routing table (col. 17, line 8-42; col. 43, line 46 to col. 44, line 9). Brown provides the solution for selecting of the best routing path utilizing the route table

information, above, such that the route could be the best path. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hammill, Pizzicaroli with Brown's steering antenna and phase shift, such that the best route path could be selected.

Regarding **claim 22**, Brown has taught above in claim 1 for the tuning information in the route table.

Regarding **claim 23**, Brown taught the steering antenna, phase shift, the beam compensation for the changing of amplitude or phase of a beam (the beams steering using various microstrip phase delay line in col. 14, line 51 to col. 15, line 4; the beam steering with independently controlling of directivity gain and power gain, and the control for increasing the receive power gain in col. 25, lines 29-52), Hammill teaches the tuning information in the route table 1-2.

Regarding **claims 24, 25**, Brown teaches in claim 1 above for the maintaining of the spacecraft's orientation for the east/west, north/south station keeping (col. 30, lines 7-20);

Regarding **claims 26, 27,** Brown teaches the constantly updating of the route information in the cache memory and receive route information for the updating the routing table from order wire, from RF control channel (col. 43, line 46 to col. 44, line 9; col. 49, lines 10-20).

7. Claims 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hammill in view of Brown (US 6,157,621).

Regarding **claim 29**, Hammil fails to teach the step of reconfiguring the payload comprising changing the amplitude or phase coefficients of a beam in response to the tuning information.

Brown teaches the reconfiguring the payload comprising the changing of the amplitude or phase coefficient of the beam in response to the tuning information in the routing table (the beams steering using various microstrip phase delay line in col. 14, line 51 to col. 15, line 4; the beam steering with independently controlling of directivity gain and power gain, and the control for increasing the receive power gain in col. 25, lines 29-52). Brown considers the utilization of the on-board computer, the adaptive routing processor for selecting the best route pathway according to routing table (col. 17, line 8-42; col. 43, line 46 to col. 44, line 9). Brown provides the solution for selecting of the best routing path utilizing the route table information, above, such that the route could be the best path. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hammill with Brown's TDMA switch, such that the best route path could be selected.

Regarding **claims 30, 31,** Brown teaches the constantly updating of the route information in the cache memory and receive route information for the updating the routing table from order wire, from RF control channel (col. 43, line 46 to col. 44, line 9; col. 49, lines 10-20).

Claims Objection

8. Claim 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The cited prior arts fails to teach the programmable synthesizer coupled to said upconverter and said down converter.

Response to Argument

9. Applicant's arguments with respect to claims 1-8, 10-12, 15-31 have been considered but are moot in view of the new ground(s) of rejection.

Regarding applicant's amendment for the no teachings for the routing table storing tuning information to control the frequency reconfiguration from programmable frequency synthesizer (claims 1, 15, 18, 18), the ground of rejection has been changed to utilize Hammill et al. (US 6,173,178 B1). Hammill et al. (Hammill) teaches the satellite having many different reconfigurable antenna beam sizes coverage (Fig. 1, abstract). The routing table (Table 1-2) is transmitted from the ground station to satellite, for reconfiguring of the satellite beam <u>bandwidth</u> of the satellite, therefore, as well as the frequency (the reconfiguring of the frequencies in different bandwidth, col. 4, lines 13-25; the reconfiguring of frequencies in band width requirement in col. 1, lines 14-17, in the low, high bandwidth in col. 2, lines 24-27, in the bandwidth demands and the required bandwidth in col. 6, lines 1-12), the routing table contains different frequencies for their associated different beam sizes (col. 6, lines 12-26). Hammill teaches the reconfiguring of a satellite (col. 4, lines 16-25), therefore, inherently disclosing of the deploying a reconfigurable satellite.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles C. Chow whose telephone number is (703) 306-5615. The examiner can normally be reached on 8:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (703) 305-4385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Charles Chow C.C.

April 2, 2005.